UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE
Forest Insect & Disease Management
P.O. Box 5895, Asheville, NC 28803

Report No. 77-1-17

5230
July 22, 1977

Mr. Roy Hutto
Tree Improvement
Eight Oaks Seed Orchard
International Paper Company
Georgetown, SC 29440

Dear Mr. Hutto:

At the request of Sue Goldman, Entomologist, International Paper Company, Bainbridge, Georgia, Larry R. Barber and Iral Ragenovich, Entomologists, visited the Eight Oaks Seed Orchard on May 18, 1977. Sue has a study at the orchard in which she is evaluating insect control in both loblolly and slash pine with Furadan(R) and Guthion(R). She reported that several International Paper orchards were experiencing difficulty in controlling insects with Guthion(R). Sue and I were both concerned that spray coverage with Guthion(R) may not have been good enough to control insects. For this reason, a spray deposit analysis was made to determine if spray coverage, which is essential for maximum insect control, was satisfactory.

Spray cards made from Kromekote(R) paper were affixed to 12 oz. soft drink cans which were then hung from branches in the upper and middle crowns of four loblolly pine trees (Fig. 1). Using the orchard's hydraulic sprayer and their standard procedure, the trees were sprayed on one side with a solution containing 2 pints of Rhodamine dye and one pint of sticker in 100 gallons of water (Fig. 2). After application, the cards were allowed to dry and then removed from the trees for observation. Analysis of cards showed that coverage was satisfactory on the one side of the crown that was sprayed (Fig. 3). Both sides of the trees were not sprayed because of increasingly heavy wind gusts and the possibility of the dye drifting on the spray operators. This year, orchard personnel are applying Guthion(R) to both crown faces and I believe from what I have observed coverage will be satisfactory.

You mentioned that the Guthion 2L formulation is presently used on the orchard. In earlier communication with Chemagro, the manufacturer of Guthion(R), they indicated that with this formulation, the active ingredient may crystallize and

settle out of the solvent system if the concentrate is stored below 55°F. Changing to the 2S formulation will eliminate this problem. Present stocks of 2L that have been stored below 55°F. should be agitated before use. Agitate the concentrate cans by rolling them on the ground before they are opened. This should be done when temperatures are in the 70-90°F. range. Chemagro reports this will recombine the active ingredient with the solvent system.

The trees in this evaluation were about 65 feet tall (Appendix 1). These were the largest and tallest trees I have conducted a spray analysis on. Considering this, I was impressed with the spray coverage in the upper crown. The equipment proved to be more than adequate for the job at hand. You are to be congratulated for the job you and your crew are doing. Keep up the good work.

Since you are now spraying both sides of each tree, the only recommendations I have are to use the 2S formulation and to use a sticker. From what I observed, you have every reason to expect good insect control with your Guthion(R) spray this year.

I am looking forward to reviewing the results of the Furadan-Guthion comparison study this fall. If I can be of any other help to you, please contact me.

Sincerely,

Larry R. Barber

LARRY R. BARBER
Entomologist

Enclosures

cc: Technical Supervisor, Georgetown, SC
John Heilman, Georgetown, SC
Tim O'Loughlin, Mobile, AL
Sue Goldman, Int. Paper Co., Bainbridge, GA
Toko
Hertel

Figure 1. Spray cards made from Kromekote(R) paper affixed to soft drink cans used to determine spray coverage.

Figure 2. Spray dye shown reaching upper crown of 65 ft. loblolly pine.

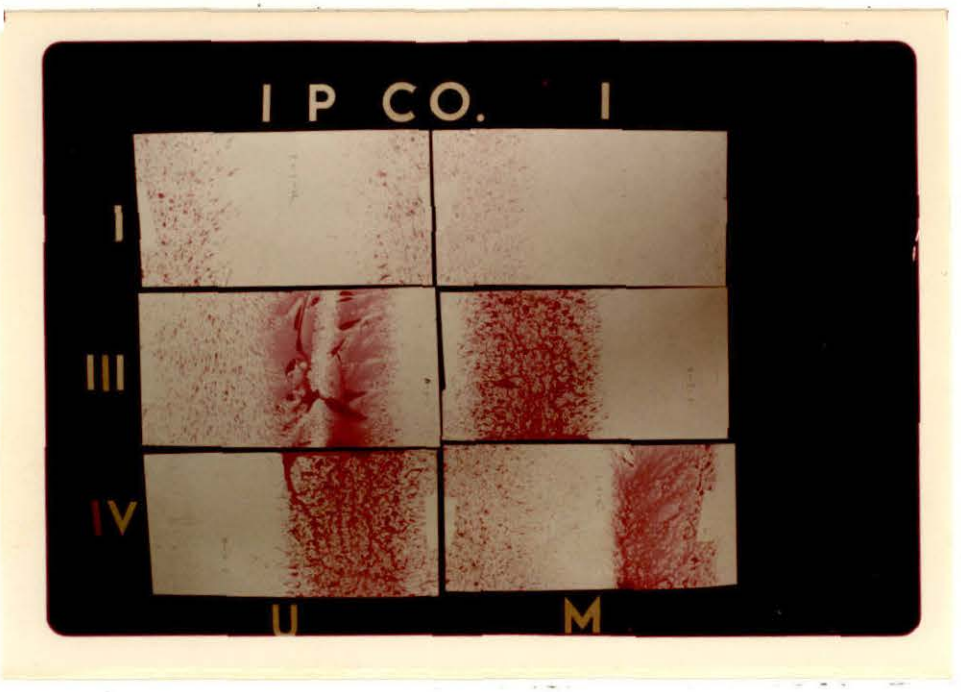

Figure 3. Spray coverage with hydraulic sprayer application to only one side of each tree crown. Normal application would be to both sides. Cards placed in four trees within upper(u) and middle(m) crown area. Trees 1, 3 and 4 shown.

Appendix 1. Background information for the Eight Oaks Seed Orchard, International Paper Company, Georgetown, S. C., spray deposit evaluation - May 18, 1977.

PARAMETERS	EIGHT OAKS SEED ORCHARD
Row Spacing	30 ft.
Tree Spacing	30 ft.
Trees Per Acre	35
Tree Species	Loblolly Pine
Tree Height (Max.)	65 ft.
Sprayer Type	Hydraulic - High Volume
Nozzles	1 Variable Adjustment
PSI	500-800
Application Per Tree	9 Gallons
Recommended Per Label	5-10 Gallons
Applications/Yr.	5
Chemical Formulation	2L
Spray Mix	6 Pints/100 Gallons Water
Spray Concentration	.2
Sides of Trees Sprayed	2[1]/
Total Guthion/Season/Acre (Rate/Tree X No. Trees/Acre X Frequency of Spraying) @ 9 Gallons/Tree	23.6 Pounds AI/AC/YR[2]/

1/ Only one side was sprayed in 1976.

2/ AI/AC/YR = active ingredient per acre per year.